

# LASING SEMICONDUCTOR OPTICAL AMPLIFIER OUTPUT POWER MONITOR AND CONTROL

## ABSTRACT OF THE DISCLOSURE

5 An optical signal power monitoring and control system is described. The system comprises at least one lasing SOA that receives, amplifies, and outputs the optical signal. During the signal amplification, a ballast laser signal is output through a substrate of the lasing SOA. This ballast laser signal is indicative of the output power of the lasing SOA. At least one detector converts the ballast laser signal to an electrical signal and transmits this electrical signal to a power monitor circuit. Using the electrical signal, the power monitor determines the output power of the lasing SOA. A pump control adjusts the rate at which the lasing SOA is pumped in order to change the saturation level of the lasing SOA and its corresponding power output ceiling. According to one embodiment, the power monitor identifies when the lasing SOA is approaching saturation or is saturated. If the lasing SOA is saturated or approaching saturation, the pump control increases its pumping rate causing the saturation level of the lasing SOA to rise. As a result, the lasing SOA is provided protection from saturation.